

What is claimed is:

1. A silent chain having reduced chordal action and a smooth wrapping around a sprocket comprising:
a plurality of interlaced link plates, each link plate having a pitch P and comprising:
a pair of teeth, each having an inside flank and an outside flank,
the inside flank of each tooth comprising a first circular arc with a radius of curvature R_1 on an addendum side and a second circular arc with a radius of curvature R_2 on a dedendum side;
and
wherein inequalities, $R_1 \geq 2 * P$ and $R_1 \gg R_2$, are satisfied.
2. The silent chain of claim 1, wherein inequalities, $R_1 \geq 20 * P$ and $R_1 \geq 20 * R_2$, are satisfied.
3. The silent chain of claim 1, wherein inequality $P_2 \geq P_1$ is satisfied, where P_1 is the pitch between the outside flank and the other outside flank along pitch line of a first link plate at initial engagement of the link plate with a sprocket tooth, and P_2 is the pitch between the inside flank of a second link plate and the inside flank of a third adjacent link plate along the pitch line.
4. The silent chain of claim 3, wherein when the chain is pulled straight, the second link plate and the third link plate overlap the teeth of the first link plate.
5. The silent chain of claim 1, wherein inequality $P_1' \geq P_2'$ is satisfied, where P_1' is the pitch between the outside flank and the other outside flank along pitch line of the first link plate at final engagement of the link plate with a sprocket tooth and P_2' is the pitch between the inside flank of the second link plate and the inside flank of the third link plate along the pitch line.

- 1 6. The silent chain of claim 5, wherein the first link plate is stationary between
2 adjacent sprocket teeth when the chain is wrapped around the sprocket.
- 1 7. The silent chain of claim 5, wherein the first link plate, the second link plate,
2 and the third link plate are stationary between adjacent sprocket teeth.
- 1 8. The silent chain of claim 1, wherein the inside flank comprises a linear portion
2 on the addendum side and a circular arc portion on the dedendum side.
- 1 9. The silent chain of claim 1, wherein the inside flank comprises a first linear
2 portion on the addendum side and a second linear portion on the dedendum
3 side with a circular arc portion connecting the first linear portion to the
4 second linear portion.
- 1 10. The silent chain of claim 9, wherein the second linear portion has a different
2 gradient than the first linear portion.